



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/718,143	11/21/2000	Lior Shabtay	500001-A1-US	1084
31825	7590	02/22/2006	EXAMINER	
RYAN, MASON & LEWIS, LLP 90 FOREST AVENUE LOCUST VALLEY, NY 11560			STRANGE, AARON N	
			ART UNIT	PAPER NUMBER
			2153	

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	09/718,143		SHABTAY, LIOR	
	Examiner		Art Unit	
	Aaron Strange		2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22, 28-35 and 37-41 is/are rejected.
- 7) ☒ Claim(s) 23-27 and 36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. In view of the appeal brief filed on 11/28/2005, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

2. The indicated allowability of claims 8-10 is withdrawn in view of the newly discovered reference(s) to Bernstein and Cohen. Rejections based on the newly cited reference(s) follow.

3. It should be noted once again that while the current claims do not specifically recite that the load balancer and accelerator are discrete elements, they have been interpreted as such in light of Applicant's arguments, (at least Page 6, Line 20 to Page 7, Line 9 of Appeal Brief filed 5/18/2005), and evidence cited in the specification.

4. With regard to claim 1, and Applicant's assertion that the amendments filed 3/18/2005, attempting to add the limitation "the load balancer and accelerator switch being separate from one another" had been previously considered by the Examiner (Page 3, Line 20 to Page 4, Line 3 of Appeal Brief filed 11/28/2005), the Examiner respectfully disagrees. These limitations were discussed only in the context of informing Applicant that they had not been claimed. Adding them would have significantly altered the scope of the claim language, requiring further search and/or consideration. Such amendments are not entitled to entry after a final rejection.

With regard to the proposed amendments to claims 3,6, and 9, those amendments would have been acceptable if filed in a separate, timely filed amendment omitting the proposed amendments to claims 1,13,28 and 37. Partial entry of after final amendments is not permitted, and a separate amendment containing only the amendments suggested by the Examiner was never filed. Therefore, claims 3,6, and 9 remain rejected/objected to.

5. Applicant's arguments with respect to the art rejections of claims 1-41 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

6. Claims 3 and 9 are objected to because of the following informalities:
Appropriate correction is required.

7. With regard to claim 3, there appears to be a typographical error "comparing two parameters of the packets to a respective field in the list" in lines 2-3. The Examiner recommends that the claim be amended to recite "comparing two parameters of the packets to respective fields in the list".

8. With regard to claim 9, there appears to be a typographical error "comparing the destination port of the packets to respective fields in the list" in lines 2-3. The Examiner recommends that the claim be amended to recite "comparing the destination port of packets to a respective field in the list".

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11. With regard to claim 6, the limitation "determining whether the packets math an entry of the list comprises comparing the source IP address and source port of the packets to respective fields in the list" is not clear, since these parameters are modified by the load balancer when it is operating in the second mode, as claimed in claim 1. No

mode of operation is specified in claim 6 or any claim from which it depends. The Examiner recommends that the claim be amended to specify that the load balancer operates in the first mode when these parameters are used. For the purpose of applying prior art to claim 6, it has been interpreted that the load balancer must be operating in the first mode in order for the limitations of claim 6 to apply.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 1-22, 28-35 and 37-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bernstein et al. (US 6,157,644) in view of Cohen et al. (US 6,389,462).

14. With regard to claim 1, Bernstein discloses a method of accelerating the operation of a router by an accelerator switch comprising:

receiving, by the accelerator, packets directed to the router (packets are received at network-side port) (Col 6, Lines 15-17);

determining, for at least one of the received packets, whether the packets match an entry of a list of packet groups (Col 6, Lines 21-25); and

forwarding, by the accelerator, at least one of the received packets, directly to its destination, responsive to the determining (packets which match an entry are forwarded directly to their final destination, bypassing the router)(Col 7, Lines 4-22). Bernstein fails to specifically disclose that the router is a load balancer configured to operate in a first mode that changes at least one of a destination IP address and a destination port and a second mode that changes at least a source IP address and a destination IP address of one or more packets it forwards.

Cohen teaches the use of load balancers to direct requests for content to proxy servers. Cohen further discloses that the load balancer is configured to operate in a first mode that changes at least one of a destination IP address and a destination port (half NAT) and a second mode that changes at least a source IP address and a destination IP (full NAT) address of one or more packets it forwards (at least Col 14, Lines 26-33 and Col 15, Lines 16-19). Load balancers would have been an advantageous addition to the system disclosed by Bernstein since the accelerator switch taught by Bernstein would have increased the throughput between the clients and the proxies at low cost, since subsequent requests could be handled by the switch and bypass the load balancer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use load balancers as the router in the system taught by Bernstein in order to increase the throughput of the load balancing network.

15. With regard to claims 2 and 4, Bernstein further discloses that determining whether the packets match an entry of the list comprises comparing three or fewer parameters (a single parameter) of the packets to respective fields in the list (IP destination address) (Col 6, Lines 21-25).

16. With regard to claim 3, while the system disclosed by Bernstein in view of Cohen shows substantial features of the claimed invention (discussed above) it fails to specifically disclose that determining whether the packets match an entry of the list comprises comparing two parameters of the packets to respective fields in the list.

However, it is clear that the number of parameters is flexible based on the operating environment of the system and adding additional parameters to the comparison as needed would have been a matter of preference for the system designer to ensure that sessions could be uniquely identified.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine whether the packets match an entry of the list by comparing two parameters of the packets to respective fields in the list. This would have allowed the system designer to use an additional parameter as needed to ensure that sessions could be uniquely identified.

17. With regard to claim 5, Bernstein and Cohen further disclose that receiving packets directed to the load balancer comprises receiving packets directed from a client to a Web site (URL requests) (Cohen, Col 6, Lines 31-34) associated with the load

balancer and forwarding at least one of the received packets directly to its destination comprises forwarding the packets from the clients to one of the servers of the Web site without passing through the load balancer (subsequent packets are passed through without being load balanced) (Bernstein, Col 7, Lines 4-22).

18. With regard to claims 6,7, and 9 while the system disclosed by Bernstein and Cohen shows substantial features of the claimed invention (discussed above), it fails to specifically disclose that the compared parameters are the source IP/port or specifically exclude the destination address and/or source address.

Nonetheless, it is apparent that the compared parameters are merely a personal preference of the system designer, and one of ordinary skill in the art would have readily recognized the appropriate parameters to compare based on their implementation of the system.

Therefore, it would have been obvious to one of ordinary skill in the art to compare any of the available parameters in order to determine where to forward the received packets, based on the design goals of the system.

19. With regard to claim 8, Bernstein and Cohen further disclose that receiving packets directed to the load balancer comprises receiving packets directed from a server to a client (response to requests)(Cohen, Col 15, Lines 57-67) and forwarding at least one of the received packets directly to its destination comprises forwarding the packets from the server to the client without passing through the load balancer

(subsequent packets are passed through without being load balanced) (Bernstein, Col 7, Lines 4-22).

20. With regard to claim 10, Bernstein further discloses that the compared parameters do not include a source address (Col 6, Lines 21-25).

21. With regard to claim 11, Bernstein further discloses that forwarding at least one of the received packets comprises forwarding packets for which a matching entry was found (Col 7, Lines 4-22).

22. With regard to claim 12, Cohen further discloses that the load balancer is operating in half NAT or full NAT mode (discussed regarding claim 1).

23. With regard to claim 13, Bernstein discloses a method of accelerating the operation of a router by an accelerator switch comprising:

receiving, by the accelerator, a packet directed to or from a router (Col 6, Lines 15-17);

creating, by the accelerator, an entry comprising parameters not changed by the load balancer in the list of destination server, responsive to the received packet (Col 6, Lines 28-47).

Bernstein fails to specifically disclose that the router is a load balancer configured to operate in a first mode that changes at least one of a destination IP address and a

destination port and a second mode that changes at least a source IP address and a destination IP address of one or more packets it forwards.

Cohen teaches the use of load balancers to direct requests for content to proxy servers. Cohen further discloses that the load balancer is configured to operate in a first mode that changes at least one of a destination IP address and a destination port (half NAT) and a second mode that changes at least a source IP address and a destination IP (full NAT) address of one or more packets it forwards (at least Col 14, Lines 26-33 and Col 15, Lines 16-19). Load balancers would have been an advantageous addition to the system disclosed by Bernstein since the accelerator switch taught by Bernstein would have increased the throughput between the clients and the proxies at low cost, since subsequent requests could be handled by the switch and bypass the load balancer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use load balancers as the router in the system taught by Bernstein in order to increase the throughput of the load balancing network.

24. With regard to claim 14, Bernstein further discloses that creating the entry comprises creating an entry which does not include a destination address of a web site (IP destination address is used) (Col 6, Lines 44-47).

25. With regard to claims 15 and 16, Cohen further discloses that the load balancer is operating in half NAT or full NAT mode (discussed regarding claim 1).

26. With regard to claims 17 and 18, Bernstein and Cohen further disclose that receiving the packet comprises receiving a packet directed from the load balancer to a server (Bernstein Col 6, Lines 39-42) or from a server to the load balancer (response to requests)(Cohen, Col 15, Lines 57-67).

27. With regard to claim 19, Bernstein further discloses that creating the entry comprises creating the entry using only information in the received packet as it was received (IP destination address) (Col 6, Lines 44-47).

28. Claims 20-22 are rejected under the same rationale as claims 6,7, and 9, since they recite similar subject matter.

29. With regard to claim 28, Bernstein discloses a load balancing accelerator, comprising:

- an input interface which receives packets directed to a router (packets are received at network-side port) (Col 6, Lines 15-17);

- a table which lists packet groups and their respective destination servers, the table having physical entries which can accommodate different field sets for storage of data entries (packet-forwarding table)(Col 6, Lines 21-25);

- a comparator which compares at least one of the packets directed to the router to one or more of the data entries of the table (Col 6, Lines 21-25);

a forwarding unit which forwards at least one of the packets for which a match was found by the comparator, directly to a server, responsive to the contents of the matching data entry (Col 7, Lines 4-22); and

a controller which determines in which field set, from the plurality of different field sets, each of the data entries of the table is stored (Col 6, Lines 34-47).

Bernstein fails to specifically disclose that the router is a load balancer.

Cohen teaches the use of load balancers to direct requests for content to proxy servers. Cohen further discloses that the load balancer is configured to operate in a first mode that changes at least one of a destination IP address and a destination port (half NAT) and a second mode that changes at least a source IP address and a destination IP (full NAT) address of one or more packets it forwards (at least Col 14, Lines 26-33 and Col 15, Lines 16-19). Load balancers would have been an advantageous addition to the system disclosed by Bernstein since the accelerator switch taught by Bernstein would have increased the throughput between the clients and the proxies at low cost, since subsequent requests could be handled by the switch and bypass the load balancer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use load balancers as the router in the system taught by Bernstein in order to increase the throughput of the load balancing network.

30. Claims 29-31 and 33-35 are rejected under the same rationale as claims 6,7, and 9, since they recite similar subject matter.

31. With regard to claim 32, Bernstein further discloses that all data entries of the table are stored in the same field sets (Only IP address/next hop fields are used)(Col 6, Lines 21-25).

32. With regard to claim 37 and 39-41, Bernstein discloses a router accelerator, comprising:

- an input interface which receives packets directed to a router (packets are received at network-side port) (Col 6, Lines 15-17);

- a table which lists packet groups and their respective destination servers (packet-forwarding table)(Col 6, Lines 21-25);

- a comparator which compares at least one of the packets directed to the router to at least one of the entries of the table (Col 6, Lines 21-25);

- a forwarding unit which forwards directly to a server, at least one of the packets for which a match was found by the comparator, responsive to the contents of the matching entry (Col 7, Lines 4-22), and changes at least one of the fields of the forwarded packets (layer 2 next hop address is changed) (Col 7, Lines 14-20); and

Bernstein fails to specifically disclose that the forwarding unit is capable of operating in a plurality of operation modes, a controller which determines in which mode the forwarding unit operates, or that the router is a load balancer.

Cohen teaches the use of load balancers to direct requests for content to proxy servers. Cohen further discloses that the load balancer is configured to operate in a first

Art Unit: 2153

mode that changes at least one of a destination IP address and a destination port (half NAT) and a second mode that changes at least a source IP address and a destination IP (full NAT) address of one or more packets it forwards (at least Col 14, Lines 26-33 and Col 15, Lines 16-19). Load balancers would have been an advantageous addition to the system disclosed by Bernstein since the accelerator switch taught by Bernstein would have increased the throughput between the clients and the proxies at low cost, since subsequent requests could be handled by the switch and bypass the load balancer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use load balancers as the router and have the forwarding unit emulate the different modes of the load balancer based on determination of the load balancer's operating mode in order to maintain transparency of the accelerator switch and increase the throughput of the load balancing network.

33. With regard to claim 38, Bernstein further discloses that the forwarding unit is capable of performing splicing (accelerator is transparent) (Col 4, Line 64 to Col 5, Line 7).

Allowable Subject Matter

34. Claims 23-27 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

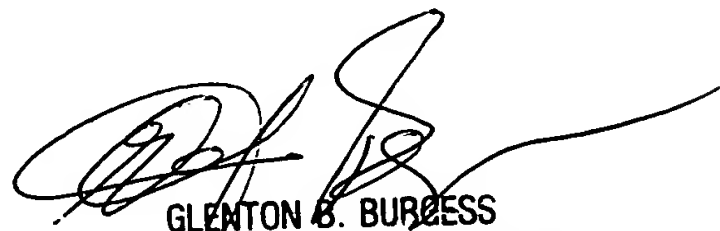
Conclusion

35. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron Strange whose telephone number is 571-272-3959. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached on 571-272-3949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AS
2/16/2006


GLENTON B. BURGESS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100